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certain time, the solution for this part of the motion is

$$x = \frac{Ma_1' - F}{2\rho g}\left[\cosh t\sqrt{\frac{2\rho g}{M + m' + mk^2/r^2}} - 1\right].$$

If, at the instant $t = t_1$, a_1 changes to the constant value a_1'', the solution for the ensuing motion is

$$x = \frac{Ma_1' - F}{2\rho g}\left[\cosh t\sqrt{\frac{2\rho g}{M + m' + mk^2/r^2}} - 1\right] + M\frac{(a_1'' - a_1')}{2\rho g}\left[\cosh (t - t_1)\sqrt{\frac{2\rho g}{M + m' + mk^2/r^2}} - 1\right].$$

Professor Huntington's case 1 was also solved by C. C. WYLIE.

2863 [1920, 482]. Proposed by A. A. BENNETT, University of Texas.

From their generation as roulette curves, show that the two hypocycloids of five cusps drawn with common vertices, are such that each is the envelope of a chord of constant length suitably placed upon the other.

Show that for any odd prime p, the $(p - 1)/2$ distinct p-cusped hypocycloids with common vertices may be arranged in cycles, so that each is the envelope of a chord of constant length taken upon the succeeding curve of the cycle.

A solution of this problem appears on pages 371–373 of this issue of the MONTHLY.

NOTES AND NEWS.

It is to be hoped that readers of the MONTHLY will coöperate in contributing to the general interest of this department by sending items to H. P. MANNING, Brown University, Providence, R. I.

Miss GERTRUDE I. MCCAIN, of Oxford College, has been made professor of mathematics at Westminster College, New Wilmington, Pa.

Associate Professor J. V. MCKELVEY decided to remain at Iowa State College (compare *1921*, 285).

We are requested to state that our note regarding Associate Professor W. A. WILSON'S promotion (*1921*, 332) is not in accordance with fact.

At the University of Michigan, Mr. J. P. BALLANTINE, of Pennsylvania State College, and Mr. W. M. COATES, of the University of Virginia, have been appointed instructors of mathematics.

Mr. J. C. FUNK, of Tamalpais Polytechnic High School, Mill Valley, Cal., has been elected to the headship of the department of mathematics in the Santa Maria high school and junior college.

Associate Professor EMMA L. KONANTZ, who has spent two years on leave of absence teaching in Peking University, has returned to her position at Ohio Wesleyan University.

Mr. H. K. CUMMINGS, instructor of physics at the Worcester Polytechnic Institute, and experimental physicist in the research laboratories of the Acheson Graphite Company, has been appointed instructor of mathematics at Brown University.

Mr. F. W. WINTERS, of Mount Allison University, but recently a student instructor at Yale University, has been appointed assistant professor of mathematics at Dalhousie College, Halifax, Nova Scotia.